

96-278812/29 A26 D15 J01 (A97) **CHEM 94.12.12**
HUELS SILICONE GMBH *DE 4444175-A1
94.12.12 94DE-4444175 (96.06.13) B01D 19/04, C08G 77/08, 77/10,
77/12, 77/20, 77/38, 77/44, C08L 83/04
**Non-gelling siloxane-based defoaming agent - produced simply by
hydrosilylation of two siloxanes.**
C96-088520
Addnl. Data: RAUTSCHEK H, SCHICKMANN H, OTTO R

Siloxane-based defoaming agents are claimed contg. a branched, fluid
polyorganosiloxane obtd. by reaction in presence of 2 hydrosilylation
catalysts of:

(A) an organosiloxane with average < 2 statistically distributed
functional gps.; and

(B) an organosiloxane with average > 2 statistically distributed
functional gps., the functional gps. being either Si-bonded H or
unsatd. hydrocarbon residues and each of (A) and (B) contg. only one
type of functional gp.

Claimed prodn. is by mixing and hydrosilylation of a compsn.
comprising (A) and (B) together with 0-95 wt.% polyorganosiloxane
of $20-2 \times 10^6$ mm²/s viscosity and opt. also amorphous hydrophilic
and/or hydrophobic, pptd. and/or pyrogenic SiO₂.

ADVANTAGE

EP 0716 870
A(6-AD, 6-AE, 10-E22A, 12-W12C) D(4-A1K) J(1-D2)

Widely-applicable, effective defoaming agents are obtd. by a
simple method without the danger of gelling.

PREFERRED MATERIALS

(A) has 0.1-1.7 (esp. 0.3-1) functional gps. per mol. and (B) has >
3 (esp. 4-20), the stoichiometric functional gp. ratio (A):(B) is 0.8-1.2.
(A) is obtd. by reaction of an organosiloxane having average ≥ 2
statistically distributed functional gps. with an organosiloxane having
no functional gps., esp. by reaction of di-Me-vinylsiloxy-terminated
and poly-di-Me-siloxane (PDMS) with tri-Me-siloxy-terminated
PDMS in presence of an equilibration- promoting catalyst, which can
be an acid or base. The hydrosilylation catalyst is Pt (cpd).

PREFERRED PROCESS

The SiO₂ is added to (A) or (B) or to their starting materials, esp.
to (A) prior to mixing with the other components. The amt. of SiO₂ is
0.5-15 (esp. > 1) wt.% and hydrophobisation can be effected in situ
in the siloxane at 100-250 °C for 10 mins.-24 h.

|DE 4444175-A+

EXAMPLE

A defoaming agent which could be used in amt. 5 g together with
95 g Na₂SO₄ to give 84 % defoaming in a washing powder (Si content
0.2 % from the agent) comprised:

- (i) 200 pts. non-cyclic siloxane contg. on average 1 unsatd. gp./mol
and prepd. by reacting 600 pts. di-Me vinylsiloxy-terminated PDMS
(viscosity 10000 mm²/s) and 200 pts. tri-Me-siloxy-terminated PDMS
(350 mm²/s) in presence of 200 ppm phosphorus nitrile chloride for 4
h at room temp. and then neutralising with 50 ppm triisooctylamine;
- (ii) 40 pts. prod. with average 10 Si-bonded H atoms obtd. by reacting
990 pts. tri-Me-siloxy-terminated PDMS (20,000 mm²/s) and 10 pts.
Me₃SiO[SiMeH.O]₅₀SiMe₃ in presence of 20 ppm phosphorus nitrile
chloride for 6 h at room temp. and then neutralising with 50 ppm
triisooctylamine; and
- (iii) 600 pts. dispersion of 272 pts. hydrophilic pyrogenic SiO₂ (BET
200 g/m²) and 1728 pts. PDMS (200 mm²/s).

Mol ratio SiH : Si vinyl = 0.8.

(TDP)

(10pp1958DwgNo.0/0)

|DE 4444175-A